CLAIMS

1. A method of automatically detecting motion which involves the steps of:

-   storing preselected patterns in terms of characteristic identifiers of the type of motion required to be detected in memory means of a computer;

-   capturing images in the form of image frames of the area in which the detection of motion is required;

-   storing the image frames in memory by means of the computer;

-   extracting characteristic identifiers of the motion required to be detected, from the image frames;

-   storing the characteristic identifiers in memory means of the computer;

-   updating the preselected patterns with the characteristic identifiers;

-   storing a sensitivity value in memory by means of the computer;

-   comparing the extracted characteristic identifiers with the preselected patterns;

-   comparing the characteristic identifiers with the sensitivity value if the characteristic identifiers correspond with the preselected patterns;

-   activating alerting means if the sensitivity value is exceeded.

2. A method of automatically detecting motion as claimed in claim 1, in which the motion refers to a fire.

3. A method of automatically detecting motion as claimed in claim 2, in which the fire is detected by detecting smoke and flame during day time conditions.

4. A method of automatically detecting motion as claimed in claim 2, in which the fire is detected by detecting change in light intensity during night time conditions.

5. A method of automatically detecting motion as claimed in claim 2, in which the fire is detected by detecting the source of light intensity or smoke and flame of the fire.

6.   A method of automatically detecting motion as claimed in claim 2, in which the fire is detected by detecting the direction of motion of its center of gravity.

7.   A method of automatically detecting motion as claimed in claim 2, in which the persistent nature of the fire is used in the detection thereof.

8.   A method of automatically detecting motion as claimed in claims 2, in which terrain information pertaining to the area required to be detected is used in the detection of fire.

9.   A method of automatically detecting motion as claimed in claim 2, in which the fire is detected by detecting the infra red radiation thereof.

10.   A method of automatically detecting motion as claimed in any one of claims 2 to 9, in which the smoke, flame, and change in light intensity, source of the fire, direction of fire, the persistent nature of the fire, the terrain, and infra red radiation information forms part of the preselected patterns which is used for fire detection purposes.

11.   A method of automatically detecting motion as claimed in any one of claims 1 to 10, which involves the step of enhancing the captured image prior to storage in memory means of a computer.

12.   A method of automatically detecting motion as claimed in claims 11, in which the captured image is enhanced under the influence of a computer program residing in memory means of a computer.

13.   A method of automatically detecting motion as claimed in claims 1 to 12, in which information not related to the particular type of motion required to be detected is rejected under the influence of a computer programme residing in memory means of a computer, which computer programme uses the preselected patterns for such purpose.

14.   A method of automatically detecting motion as claimed in claims 1 to 13, in which a captured frame is compared to a like previously stored frame for motion detection.

15.   A method of automatically detecting motion as claimed in claim 14, in which the previously stored frame is found by electronic shifting of the image frames under the influence of the computer programme.

16.   A method of automatically detecting motion as claimed in claims 14 and 15, in which the required motion is identified by subtracting a past captured image from the present captured image, and identification taking place by using a preselected patterns of the required motion.

17.   A method of automatically detecting motion as claimed in claims 15 and 16, in which the required motion is indicated by a technique which involves the flickering of two consecutive image frames leading to the flashing of parts of the image which has undergone motion.

18.   A method of automatically detecting motion as claimed in any one of claims 1 to 17, in which the preselected patterns is updated by way of a neural network.

19.   A method of automatically detecting motion as claimed in claims 1 to 18, in which the preselected patterns is updated after the capture of every image frame.

20. A method of automatically detecting motion as herein generally described.

21. An automatic intelligent motion detection system comprising at least one observation post accommodating a video camera, the video camera capturing images which are transmitted by suitable telecommunication means to a control station, the control station accommodating at least one computer which captures the images originating from the video camera, the computer digitising the image frames and storing this information in its memory means, the memory means further storing a preselected patterns related to characteristic identifiers of the type of motion required to be detected, and this preselected patterns being compared to characteristic identifiers extracted from the image frame for the detection of the particular type of motion, under the influence of a computer program also residing in the computer's memory means, the display and detection of motion being displayed on a suitable monitor connected to the computer.

22. An automatic intelligent motion detection system as claimed in claim 21 which comprises a plurality of observation posts suitably positioned around a control station.

23. An automatic intelligent motion detection system as claimed in any one of claims 21 or 22, in which the video camera is suitably housed in a protective encasement.

24. An automatic intelligent motion detection system as claimed in any one of claims 21 to 23, in which the telecommunication means is a radio channel.

25. An automatic intelligent motion detection system as claimed in any one of claims 21 to 23, in which the telecommunication means is a satellite channel.

26. An automatic intelligent motion detection system as claimed in any one of claims 21 to 23, in which the telecommunication means is a fibre optics cable.

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27.   An automatic intelligent motion detection system as claimed in any one of claims 21 to
       23, in which the telecommunication means is an electrical conductor.

28.   An automatic intelligent motion detection system as claimed in any one of claims 21 to
       27, in which the video camera is mounted on means allowing it to be rotated.

29.   An automatic intelligent motion detection system as claimed in claim 28, in which the
       video camera is rotated automatically under the influence of the computer programme
       residing in the computer's memory means, the rotation of the camera being facilitated
       by transmitting appropriate signals via the said telecommunication means.

30.   An automatic intelligent motion detection system as claimed in any one of claims 21 to
       28, in which the video camera is rotated manually using a device adapted for this
       purpose, the device being accommodated in the control station, and control signals for
       rotating the video camera being transmitted by the said telecommunication means.

31.   An automatic intelligent motion detection system as claimed in any one of claims 28 to
       30, in which the video camera is rotated continuously.

32   An automatic intelligent motion detection system as claimed in any one of claims 28 to
       30, in which the video camera is rotated at predetermined time periods only.

33.   An automatic intelligent motion detection system as claimed in claim 30, in which the
       said manual device is adapted to manually pan, tilt and zoom the video camera.

34.   An automatic intelligent motion detection system as claimed in any one of claims 21 to
       33, in which the video camera is solar powered.

35.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 33, in which the video camera is powered by a wind generator.

36.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 33, in which the video camera is powered by both solar panels and wind generators.

37.   An automatic intelligent motion detection system as claimed in any one of claims 34 to 36, in which a backup battery is provided for the video camera in order to reduce the risk of the video camera discontinuing operation in the event of solar power means malfunctioning.

38.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 37, in which the control station is provided with an uninterruptable power supply (UPS).

39.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 38, in which the capture of images from the video camera is carried out in the form image frames, this form of capturing taking place under the influence of a computer program.

40.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 39, in which a suitable display means is coupled to the computer to display the captured images.

41.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 40, in which the identification of the required motion is carried out by comparing the extracted characteristic identifiers with the preselected patterns and a sensitivity value stored in the memory means of the computer.

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42. An automatic intelligent motion detection system as claimed in any one of claims 21 to 41, in which the updating of the preselected patterns is carried out by a neural network residing in the computer, such updated preselected patterns being further used in the identification of the required motion.

43. An automatic intelligent motion detection system as claimed in as claimed in any one of claims 21 to 42, in which suitable alerting means is activated by the computer to alert personnel of the presence of required alarm event.

44. An automatic intelligent motion detection system as claimed in claim 43, in which the alerting means is an audible alarm.

45. An automatic intelligent motion detection system as claimed in claim 43, in which the alerting means is a speech synthesiser.

46. An automatic intelligent motion detection system as claimed in any one of claims 21 to 45, in which the computer, via the computer program, is adapted to discard motion not forming part of the motion required to be detected.

47. An automatic intelligent motion detection system as claimed in any one of claims 21 to 46, in which the motion required to be detected is fire.

48. An automatic intelligent motion detection system as claimed in claim 47, in which the computer under the influence of the computer program is adapted to indicate the most optimum access route towards, or to avoid the fire.

49 An automatic intelligent motion detection system as claimed in claim 47, in which an infra red sensor relays information pertaining to the infra red radiation of the fire,

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which information forms part of the preselected patterns, and is used in the detection of fire.

50.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 49, in which the computer program allows the enhancement of the captured image frames.

51.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 50, in which interaction with the system is carried out using touch screen technology, with the display means of claim 33 being the interaction medium.

52.   An automatic intelligent motion detection system as claimed in any one of claims 21 to 51, in which interaction with the system is carried out using a keyboard.

53.   An automatic intelligent motion detection system as herein generally described.

54.   An automatic intelligent motion detection system as herein specifically described with reference to the accompanying drawings.

DATED THIS 1ST DAY OF MARCH 1996.

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